(iii) a test agent that inhibits the expression of one or more of *rep*B, *rep*D and *APE* gene products identifies said agent as a potential chemotherapeutic when applied in combination with a DNA damaging agent.

15. (Amended) The method of claim 14, wherein the ligand is biotin, and the ligand is detected by contacting with enzyme-conjugated avidin and a detectable enzyme substrate.

REMARKS

I. Status of the Claims

Claims 1-33 are pending in the application. Claims 32 and 33 stand withdrawn. Claims 1-31 have thus been examined as stand objected to and rejected under 35 U.S.C. §101, 35 U.S.C. §112, first paragraph and 35 U.S.C. §112, second paragraph. The specific grounds for objection/rejection, and applicants' response thereto, are set out in detail below.

II. Objection

Claim 14 is objected to for lack of the word "method." It is believed that the objection applies to claim 15, not claim 14. An amendment has been provided to claim 15 correcting the error.

III. Rejection Under 35 U.S.C. §101

Claims 1-31 stand rejected under §101 as lacking a patentable utility. According to the examiner, the "finding [of] compounds for the prevention of any cancer" is incredible. Applicants traverse.

First, the examiner argues that "cancer as a group of maladies [are] not preventable with one medicament or therapeutic regime." Second, the examiner states that "preventing all cancer or finding such compounds would be seen as an incredible utility." Whether or not true, applicants submit that these embodiments are nowhere found in the claims. The claims merely set forth ***screening*** of candidate compounds for activities that would lead one to believe that they could be used in treating or preventing ***a*** cancer, not ***all*** cancers, and certainly there is no representation ***all*** cancers can be treated/prevented with a ***single*** compound. The examiner clearly is reading elements into the claims that do not exist, and as such, the rejection is improper.

In light of the foregoing, applicants respectfully request reconsideration and withdrawal of the rejection.

IV. Rejection Under 35 U.S.C. §112, First Paragraph

Claims 1-31 stand rejected under §112, first paragraph, as lacking an enabling disclosure. Applicants traverse.

Again, the examiner argues that applicants claim identification of compounds useful for treating ***any*** cancer. That is incorrect. Applicants' claims merely recite identification of compounds that may treat ***a*** cancer, and certainly do not suggest that a compound may treat ***multiple*** cancers (although that is entirely possible).

In addition, the examiner argues that applicants have not provided a method that identifies anti-cancer agents, as there is an insufficient "nexus" between the claimed screening assay in *Dictyostelium* and killing of mammalian cancer cells. Applicants traverse. The present invention clearly permits one to identify compounds with useful properties and potential uses. A

rigorous correlation with clinical efficacy is not claimed because applicants are not claiming a therapy. Rather, they are claiming a method of identifying compounds with useful properties.

In order to make the nature of the invention more clear, applicants have provided an amendment to claim 1, wherein the amended method merely recites "A method of screening agents ...," where the result of the method is to identify a test agent that is "a potential chemotherapeutic" or "chemopreventative" agent. This is believed to comport with the examiner's position on enablement, as alluded to at pages 4-5 of the action.

Moreover, applicants analogize this situation to that presented by *Cross v. Iizuka*, 224 USPQ 739 (Fed. Cir. 1985). There, the court affirmed prior CCPA decisions that "any pharmacologic activity constitutes practice utility," even where that activity is determined *in vitro*. *Id.* at 747. In so holding, the court went on to state that "[w]e perceive no insurmountable difficulty, under appropriate circumstances, in finding that the first link in the screening chain, *in vitro* testing, may establish practical utility for the compound in question." *Id.* at 748. The court concluded that "[s]uccessful *in vitro* testing will marshal resources and direct the expenditure of effort to further *in vivo* testing of the most potent compounds, thereby providing immediate benefits to the public ...." *Id.*

In light of the foregoing, applicants respectfully request reconsideration and withdrawal of the rejection.

V. Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 1-31 stand rejected under §112, second paragraph, as indefinite. First, it is argued that claim 1 is unclear in that parts (i)-(iii) are related by the term "and." Applicants traverse. Parts (i)-(iii) merely set forth three possible scenarios stemming from the performance of the

claimed assay. This is akin to saying "wherein if **A**, then **B**; wherein if **C**, then **D**; and wherein if **E**, then **F**." The use of the term "and" in this situation does not mean that each of these scenarios happens at the same time.

Second, it is argued that use of the term "chemopreventative" is unclear, as possibly encompassing "therapeutic effects." The term chemopreventative simply means (in common vernacular) "that which prevents cancer." If a person already has cancer, a "treatment" may include prevention of further cancer development, or it may include impeding the development of the existing cancer or elimination or part or all of the clinical manifestations thereof. If a person does not have cancer, then prevention simply means that development of cancer is blocked or delayed. Furthermore, applicants nowhere state that chemoprevention (or chemotherapy for that matter) must be "complete" in the sense of a "cure," or that ***any and all cancers*** will be treated.

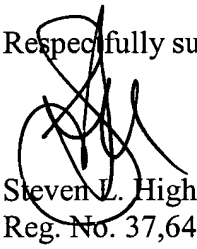
In light of the foregoing, applicants respectfully request reconsideration and withdrawal of the rejection.

VI. Conclusion

In light of the foregoing, applicants respectfully submit that all claim are in condition for allowance, and an early notification to that effect is earnestly solicited. The examiner is invited to contact the undersigned at the telephone number listed below with any questions, comments or suggestions relating to the referenced patent application.

Please date stamp and return the enclosed postcard as evidence of receipt.

Respectfully submitted,



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Date: May 8, 2003

APPENDIX A: MARKED UP COPY OF AMENDED CLAIMS

1. (Amended) A method of screening agents [for use in the prevention or treatment of cancer] comprising:

(a) contacting a vegetative cell of *Dictyostelium discoideum* with a test agent;

(b) assessing the cytotoxicity of said test agent;

(c) assessing the effect of said test agent on the expression of one or more of *rep*B, *rep*D and *APE* gene products; and

(d) comparing said cytotoxicity and said expression in the presence of said test agent with a vegetative cell of *Dictyostelium discoideum* not exposed to said test agent;

wherein

(i) a test agent that is cytotoxic but does not induce expression of one or more of *rep*B, *rep*D and *APE* gene products [will be useful] identifies said agent as a potential chemotherapeutic;

(ii) a test agent that is not cytotoxic but does induce expression of one or more of *rep*B, *rep*D and *APE* gene products [will be useful] identifies said agent as a potential chemopreventative; and

(iii) a test agent that inhibits the expression of one or more of *rep*B, *rep*D and *APE* gene products [will be useful] identifies said agent as a potential chemotherapeutic when applied in combination with a DNA damaging agent.

15. (Amended) The method of claim 14, wherein the ligand is biotin, and the ligand is detected by contacting with enzyme-conjugated avidin and a detectable enzyme substrate.

APPENDIX B: CLEAN COPY OF PENDING CLAIMS (UNOFFICIAL)

1. A method of screening agents comprising:

(a) contacting a vegetative cell of *Dictyostelium discoideum* with a test agent;

(b) assessing the cytotoxicity of said test agent;

(c) assessing the effect of said test agent on the expression of one or more of *rep*B, *rep*D and *APE* gene products; and

(d) comparing said cytotoxicity and said expression in the presence of said test agent with a vegetative cell of *Dictyostelium discoideum* not exposed to said test agent;

wherein

(i) a test agent that is cytotoxic but does not induce expression of one or more of *rep*B, *rep*D and *APE* gene products identifies said agent as a potential chemotherapeutic;

(ii) a test agent that is not cytotoxic but does induce expression of one or more of *rep*B, *rep*D and *APE* gene products identifies said agent as a potential chemopreventative; and

(iii) a test agent that inhibits the expression of one or more of *rep*B, *rep*D and *APE* gene products identifies said agent as a potential chemotherapeutic when applied in combination with a DNA damaging agent.

2. The method of claim 1, wherein assessing expression of *rep*B is performed, and assessing expression of *rep*D and *APE* is not performed.

3. The method of claim 1, wherein assessing expression of *rep*D is performed, and assessing expression of *rep*B and *APE* is not performed.

4. The method of claim 1, wherein assessing expression of *APE* is performed, and assessing expression of *rep*B and *rep*D is not performed.

5. The method of claim 1, wherein assessing expression of *rep*B and *rep*D is performed, and assessing expression of *APE* is not performed.

6. The method of claim 1, wherein assessing expression of *rep*B and *APE* is performed, and assessing expression of *rep*D is not performed.

7. The method of claim 1, wherein assessing expression of *rep*D and *APE* is performed, and assessing expression of *rep*B is not performed.

8. The method of claim 1, wherein assessing expression of *rep*B, *rep*D and *APE* is performed.

9. The method of claim 1, further comprising measuring, in a vegetative cell of *Dictyostelium discoideum* not treated with said test agent, the expression of the same gene or genes as measured in step (c).

10. The method of claim 1, wherein cytoxocity is assessed by measuring clonal plating, trypan blue exclusion, phyloxine B dye exclusion, and degradation/laddering of DNA.

11. The method of claim 1, wherein expression is assessed by hybridization of a probe to a target nucleic acid.

12. The method of claim 11, further comprising RT-PCR™.

13. The method of claim 12, wherein said probe is a member of a primer pair for RT-PCR™ and comprises a label.

14. The method of claim 13, wherein the label is a radiolabel, a fluorophore label, a chemilluminescent label, an enzyme label or a ligand.

Q2 15. The method of claim 14, wherein the ligand is biotin, and the ligand is detected by contacting with enzyme-conjugated avidin and a detectable enzyme substrate.

16. The method of claim 11, further comprising binding target nucleic acid to a substrate.

17. The method of claim 16, wherein said substrate is a nylon or nitrocellulose membrane.

18. The method of claim 16, wherein said probe is labeled with a radiolabel, a fluorophore label, a chemilluminescent label, an enzyme label or a ligand.

19. The method of claim 1, wherein expression is assessed by means of an expression cassette stably transformed into said a vegetative cell of *Dictyostelium discoideum*, said expression cassette comprising a nucleic acid segment encoding a detectable reporter enzyme under the transcriptional control of a *rep*B, *rep*D or *APE* promoter region.

20. The method of claim 19, wherein said detectable reporter enzyme encodes β-galactosidase, β-glucuronidase, luciferase or green fluorescent protein.

21. The method of claim 1, wherein said assay further comprises a positive control for inhibition of expression of one or more of *rep*B, *rep*D and *APE* gene products.

22. The method of claim 1, wherein said assay further comprises a positive control for induction of expression of one or more of *rep*B, *rep*D and *APE* gene products.

23. The method of claim 1, wherein said assay further comprises a positive control for cytotoxicity.

24. The method of claim 1, wherein said assay further comprises a negative control for inhibition of expression of one or more of *rep*B, *rep*D and *APE* gene products.

25. The method of claim 1, wherein said assay further comprises a negative control for induction of expression of one or more of *rep*B, *rep*D and *APE* gene products.

26. The method of claim 1, wherein said assay further comprises a negative control for cytotoxicity.

27. The method of claim 1, wherein said test agent is a naturally-occurring molecule.

28. The method of claim 1, wherein said test agent is a synthetic molecule.

29. The method of claim 1, wherein said test agent is a synthetic derivative of a naturally-occurring molecule.

30. The method of claim 1, further comprising assessing DNA damage in said cell.

31. The method of claim 30, wherein assessing DNA damage comprising mass spectroscopy.